Chapter 20: Construction Impacts

A. INTRODUCTION

This chapter summarizes the conceptual construction plan for the anticipated development associated with the reasonable worst-case development scenario (RWCDS) for the proposed actions, and considers the potential for adverse impacts during construction. The conceptual construction phasing and schedule for the RWCDS is described, followed by the types of activities likely to occur during construction. An assessment of potential impacts of construction activity and the methods that may be employed to avoid, minimize, or mitigate the potential for significant adverse construction impacts is then presented.

B. OVERVIEW OF CONSTRUCTION ACTIVITIES

As described in Chapter 1, "Project Description," this EIS analyzes the RWCDS anticipated for the projected development sites as a result of the proposed actions. Construction on the potential development sites is also considered for individual sites, but is not analyzed cumulatively. This chapter sets forth a construction schedule, phasing, and activities that can reasonably be expected for the RWCDS.

Construction of the various components of the RWCDS conceptual development plan would occur over a 10-year period, with construction activities and intensities varying, depending on what components of the overall development are under way at any given time. Private development market forces and the availability of City funding also determine the timing of development. The schedule for the construction impact analysis is conservative because it compresses the timing, which increases the intensity of the construction activities.

Construction phasing is generally tied to the infrastructure improvements planned within and downstream of the rezoning area required to support the full build out of the proposed rezoning. Infrastructure upgrades are slated to begin on the central blocks of the Coney North and Mermaid Avenue subdistricts—identified as Coney North B on **Figure 20-1**. Upgrades here would improve stormwater drainage and sanitary sewage in the surrounding area and would thus enable full build out in Coney East. Once infrastructure in Coney North A is upgraded, the residential and commercial development planned for Coney West could occur.

The anticipated dates of construction of each phase are shown on **Figure 20-2** and **Table 20-1**. A more detailed description of the proposed actions' general construction practices (including those associated with deliveries and access, hours of work, sidewalk and lane closures, staging and laydown, and construction parking), construction methods, and a conceptual schedule of anticipated construction activities, is provided in the discussion below.

Table 20-1
Conceptual Construction Shedule

Phase	Start Year	Completion Year
Coney North B	2009	2012
Coney North C	2012	2014
Coney North A	2013	2015
Coney East	2012	2017
Coney West	2015	2019

Notes: Construction begins in first quarter of the year and is completed in the last quarter of the year, except for 2009 when construction would begin in the last quarter.

Sources: New York City Economic Development Corporation

GENERAL CONSTRUCTION PRACTICES

Certain practices would be observed throughout the construction of the RWCDS. A contact person for community relations would be designated for each major construction contract. This person would serve as the contact for the community to voice concerns about construction activities, and would be available to meet with the community to resolve concerns or problems.

The following describes typical construction practices in New York City. In certain instances, practices employed at the individual construction sites may vary from those described below.

DELIVERIES AND ACCESS

Access to the construction sites would be controlled. The work areas would be fenced off, and limited access points for workers and trucks would be provided. Typically, worker vehicles would not be allowed into the active construction area, but may be allowed to park on the portions of a site that are not yet under construction. Some worker parking would likely be on the streets in the area. Security guards and flaggers would be posted, and all persons and trucks would have to pass through security points. Workers or trucks without a need to be on-site would not be allowed entry. After work hours, the gates would be closed and locked. Unauthorized access would be prevented after work hours and during weekends.

Material deliveries to the sites would be controlled and scheduled. Unscheduled or haphazard deliveries would be minimized.

HOURS OF WORK

Construction activities for the various RWCDS buildings and facilities would take place in accordance with New York City laws and regulations, which allow construction activities to take place between 7 AM and 6 PM. Construction work would begin at 7 AM on weekdays, with most workers arriving between 6 AM and 7 AM. Typically, work would end at 3:30 PM, but could be extended until 6 PM for such tasks as finishing a concrete pour for a pad, or completing the bolting of a steel frame erected that day. Extended workday activities would not include all construction workers on site, but only those involved in the specific task. Extended workdays would occur during foundation and superstructure tasks, and limited extended workdays could occur during other tasks over the course of construction, but would likely be minimized.

At limited times over the course of constructing a building, weekend work could be required. Weekend work requires a permit from the New York City Department of Buildings (DOB) and, in certain instances, approval of a noise mitigation plan from the New York City Department of Environmental Protection (DEP) under the City's Noise Code. The New York City Noise Control Code, as amended in December 2005 and effective July 1, 2007, limits construction (other than special circumstances as described below) to weekdays between the hours of 7 AM and 6 PM, and sets noise limits for certain specific pieces of construction equipment. Construction activities occurring after hours (weekdays between 6 PM and 7 AM and on weekends) may be permitted only to accommodate: (1) emergency conditions; (2) public safety; (3) construction projects by or on behalf of City agencies; (4) construction activities with minimal noise impacts; and (5) undue hardship resulting from unique site characteristics, unforeseen conditions, scheduling conflicts, and/or financial considerations. In such cases, the numbers of workers and pieces of equipment in operation would be limited to those needed to complete the particular authorized task. Therefore, the level of activity for any weekend work would be less than a normal workday. If it were to become necessary, the typical weekend workday would be on Saturday, beginning with worker arrival and site preparation at 7 AM, and ending with site cleanup at 5 PM.

A few tasks may have to be completed without interruption, and the work can extend past 6 PM. In certain situations, concrete must be poured continuously to form one structure without joints. This type of concrete pour is usually associated with foundations and structural slabs at grade, which would require a minimum of 12 hours or more to complete, depending on the size of the area being poured.

SIDEWALK AND LANE CLOSURES

No lane closures are expected on existing streets leading to the projected development sites. The streets between Surf Avenue and Coney Island Beach would be widened and completely reconstructed. At the same time, new infrastructure consisting of water, sewer, energy, and telecommunication would be installed. As discussed in Chapter 13, "Infrastructure," the infrastructure improvements are expected prior to completion of the projected development sites. Partial street closures and total sidewalk closures along one side of the new streets may be required for various periods of time. For the construction of the projected development sites, sidewalks would have protective sheds and/or pedestrian access may be within barriers when construction is taking place next to the sidewalk. In addition, it is expected that in certain locations temporary access ways for trucks and worker vehicles into the construction sites would cross sidewalks.

Once construction activity of buildings is under way on a projected development site, the vacant land on adjacent parcels would likely be used for staging when it is available. However, several buildings on projected development sites may be under construction simultaneously; limited adjacent area would be available for this purpose. Storage in the later stages of construction may need to take place along one side of the streets surrounding the projected development sites.

The construction cranes for hoisting materials would likely be in the new or reconstructed streets or on unconstructed parcels. In addition, construction materials, such as pre-cast concrete pieces, would likely be stored on trailers located on the streets or on unconstructed parcels. The use of the streets for construction would cause lane and sidewalk closures for several months to over a year, while some lanes and sidewalks would be closed only intermittently to allow for certain construction activities. It is likely that curb lanes would be closed continuously during

construction on a projected development site. This work would be coordinated with and approved by the appropriate governmental agencies. It is not envisioned that closures of streets adjacent to sites where construction had been completed would be needed for the construction of subsequent sites.

STAGING AND LAYDOWN AREAS

Because of the number of finished buildings, laydown areas would likely be either on vacant portions of the projected development site or on the curb lane of the local streets bordering development the projected site. Materials that are needed during the day are usually delivered early that day. These materials, such as reinforcing bars and prefabricated pieces, are stored until needed. In certain cases, several days of construction materials would be stored.

CONSTRUCTION WORKER PARKING

With the construction of various parcels within the rezoning area taking place over an approximately 10-year period, there would be, for the majority duration of the project's construction, vacant lots available for construction staging and parking. It is expected that the large majority of construction workers would park on these vacant lots adjacent to the various active construction sites, because these lots would be secure and convenient to the work area.

CONSTRUCTION METHODS

Different construction techniques would be used on the various components of the project. The retail and residential buildings (many of which would include some ground-floor retail space, as well as multi-level parking structures) would utilize conventional construction techniques. For each of the development parcels, the building sites would be prepared, piles driven if required, the foundation built, and then the building erected. The skeleton or core of the building would be built, and then the exterior or shell installed as the cores rise to about 6 to 8 stories. As the exteriors are installed, interior finishing would start. Therefore at certain times, three construction activities could be occurring at the same time: superstructure, exteriors, and interior finishing. This is likely only on the high-rise buildings. The mid-rise and low-rise buildings would have fewer construction activities occurring simultaneously. In addition, the project would also involve construction of parks, amusement facilities, new roadways, and public utilities. The construction methods are described in more detail below.

GENERAL SITE PREPARATION

The first step would be to prepare the sites for construction. This would involve site cleanup, demolition, remediation, and grading. The activities associated with these general site preparation steps are outlined below.

Site Cleanup

- Installation of site perimeter security fence;
- Removal of all residual metal, loose junk, debris, furniture, and garbage;
- Inventory and removal of all remaining small containers, drums and loose items requiring special disposal including, but not limited, to: paints, pesticides, chemicals, strippers, thinners, oils, petroleum containers, mercury containers, etc.;

- If necessary, inventory and restaging of any 55-gallon drums and large containers of liquid and solid waste for testing, classification, and disposal;
- Inventory and sampling of all structures for asbestos;
- Inventory, sampling, and removal of all light ballast equipment for disposal;
- Pumping out, cleaning, removing, and disposing of any above-ground tanks; and
- Pumping out, cleaning, excavating, removing, and closure sampling of underground storage tanks.

Demolition and Remediation

- Demolition of buildings above ground, segregating materials for disposal/recycling;
- Breaking up and removing concrete floor slabs for recycling/disposal;
- Breaking up and removing asphalt road and parking lot surfaces for recycling/disposal;
- Removal of the upper one to two feet of material where surficial contamination is prevalent and obvious, and stockpiling, sampling, and classification of the material for disposal; and
- Opening the ground in areas of drywells, floor drains, discharge points, and any newly identified underground storage tanks (USTs).

Grading

- Grading and filling on projected development sites and for new streets and parks;
- Forming and pouring of grade beams;
- Grading of roadways; and
- Additional filling of areas for sidewalks, as necessary.

The sites would be prepared using a 25 to 30 ton excavator for large earth-moving and a small mini-excavator for finishing the excavation. The leveled sites may require compaction with vibrators to minimize settlement. One of the steps that would occur during this stage of construction activities would be to drive piles in the roadways to support the new utilities. A variety of other equipment would be used for the demolition and remediation activities. Somewhere between approximately 75 to 250 workers would be "on-site" during these tasks, depending on which stage of site preparation activity is underway, and at which site.

INFRASTRUCTURE

Following the initial site preparation, utilities would be installed and then streets would be built. To install underground utilities, a trench is dug, usually about 4 to 10 feet below the ground surface. Because the roadways may rest on unconsolidated fill, short piles may be driven and pile caps installed to support the main water, sewer, gas, and electrical and telecommunication lines to prevent differential settling, which could damage the utility lines and cause unevenness at the street level. The area around the pile caps would be filled with sand or gravel. Lengths of pipe or conduit would be laid and connected together, and the pipes would be tested in sections and then as a complete system. All new underground utilities would be connected to existing utilities in the surrounding streets. These activities would be undertaken in a manner that would minimize any disruptions to service in the area.

Because some of the existing sanitary and stormwater sewers do not have capacity for the expected development in the rezoning area (See Chapter 13, "Infrastructure), the infrastructure

construction is likely to be more intensive than under normal circumstances. For example, some existing sanitary sewer lines would have to be replaced, and new stormwater sewer lines installed where they do not currently exist. In addition, detention facilities for stormwater may be required for certain buildings, if the stormwater sewers are unable to handle the runoff during a storm that has a reoccurrence period of 10 years. These factors would not change the basic construction techniques. The extended period for construction of the infrastructure has been included in the impact analysis.

Because the RWCDS involves the reconstruction as well as construction of new public streets, it is expected that all underground utilities including water, sewer, gas, electric, and telecommunications service would be installed concurrently. Providing the level of energy service required by the development envisioned under the proposed actions would require new electrical transmission and distribution lines as well as telecommunication (telephone, cable, and fiber optic) lines. The water, gas, and sewer lines would likely be placed directly onto the pile caps. For the electric and telecommunication lines, ducts would be laid on pile caps where necessary, and then the lines would be installed in the openings in the ducts. After all the various utility lines are placed on the pile caps and the necessary ancillary items, such as manholes for access and fire hydrants, are installed, the trench would be backfilled with compacted soil. If the removed soil is suitable, it would be reused; if not, clean soil would be brought in.

Trenches in the existing streets would not be left open during non-working times, but would either be filled and patched or covered with steel plates. This work typically involves backhoes to excavate the trench and place the backfill, and cranes to lift the utility lines into place. Flatbed delivery trucks are used to transport the lines and pipes to the site. Dump trucks are used to bring the bedding material and clean fill, if needed, to the work site. Asphalt trucks and rollers are needed to patch the street.

ROADS

Construction of the roadways would start after the infrastructure and utilities have been placed in the street bed in that area. The roads are graded, and then typically three to four layers of material are laid down to form the roadway. First a subbase is placed and compacted, followed by the base layer, a binder layer, and finally the top layer of asphalt, which forms the new streets' wearing surface. On streets where light traffic is expected, the base layer may be omitted. At the same time, the curbs and sidewalks would be installed. Foundations for lights and traffic control devices would also be installed. The final work would be striping the streets and crosswalks.

Construction of the roads would involve graders, bulldozers, and compactors for the first three layers. The asphalt would need a paving machine and rollers to compact the asphalt. The materials would be brought to the site by trucks and immediately placed by the graders and bulldozers. The roller/compactor would be used after each layer has been placed. The asphalt would be brought by trucks and placed into the paving machine for spreading and compacting. The road work uses large mechanical equipment.

Construction of the sidewalks and installation of the curbs and roadside appurtenances is more labor intensive than the road construction. Forms are placed by hand to shape the curb, sidewalk, and foundations for the street appurtenances. After reinforcing mesh is laid, concrete is poured from concrete trucks.

PARKS

During construction of the parks and open spaces, clean top soil would be imported for installation of grassy areas and landscaping. Concrete sidewalks would be poured, and street furniture, such as benches and tables, would be installed. Concrete trucks would be needed to bring concrete for the sidewalks. The top soil would involve dump trucks bringing the soil and hand spreading. Trees and shrubs would be planted. For the active recreation areas, the ground surfaces would be installed, followed by the appropriate amenities (e.g., basketball hoops, volleyball nets, etc.). The majority of this work would be done by hand.

PUBLIC AND RESIDENTIAL BUILDINGS

The new buildings could be built of masonry steel, and reinforced concrete or a combination of these materials. In any case, the first step would be to drive the piles that support the larger buildings. The smaller low-rise buildings may not need piles and could be built on grade beams, which are concrete beams in the soil. Pile caps would be formed and concrete poured to build the foundations for the various buildings. The pile driving and foundations would employ about 75 construction workers at any given building. A pile driver and generator would be used. To construct the superstructure of a building, two methods are likely to be used. The traditional method is block walls for low- and mid-rise buildings. This type of construction requires about 200 masons and laborers per day at any given building to build the walls, floors, and roof. A rough terrain fork lift would be used to move the masonry around the building site and into position for the masons. Mortar mixers would also be used. In addition, for the high-rise components of the buildings on the projected development sites, building cores and shells could be reinforced concrete columns or steel columns. In both cases, steel beams would be used for some structural work. Also in both cases, the floor plates would likely be concrete. These activities would require the use of cranes, compressors, material hoists, on-site reinforcing bar bending jigs, welding equipment, and a variety of hand-held tools.

For the exterior large pre-cast concrete planks can brought to the site on tractor trailers. The pre-cast elements would be lifted by large cranes from the bed of the tractor trailers and secured into place. In lieu of the pre-cast concrete planks, the exterior could be constructed of a glass curtain wall that is attached to the building. The curtain wall components would also be brought to the site on tractor trailers. The installation of either material would involve similar work and would require the same number workers per building, about 75 per day. At this point in the construction, electric service may be provided, and generators would no longer be needed. The interior fit-out of the buildings is the most labor-intensive part of constructing the buildings, with about 100 to 150 workers per building on-site each day. Interior finishing involves electrical installation; heating, ventilation and air conditioning; sheet-rocking; and painting. Mostly small hand tools are used for interior finishing, but a high number of deliveries for materials, such as sheet rock, ceiling tiles, flooring and interior electrical, mechanical, and plumbing fixtures are required. Approximately 25 to 60 delivery trucks would arrive at and leave each development parcel each working day in connection with this task, for any given building.

It is expected that almost all work would be done during normal construction hours of 7 AM to 4 PM, five days a week. On occasion, some extended shift work to 6 PM may be required to complete a particular task. Weekend and night work is not expected.

AMUSEMENT BUILDINGS

The buildings at amusement parks are often lightweight and pre-engineered. Pieces are typically transported to the site and erected on foundations. Amusement buildings typically have larger open spaces with long spans between walls and higher ceilings. The site preparation, excavation, pile driving, foundation, and exterior walls (shell) work would be the same as described above under the conventional residential construction. The additional work would involve the placement of steel columns to provide roof support. The interior work would be simpler because fewer interior rooms would be provided with less framing, dry wall, and finishing work.

AMUSEMENT PARK RIDES

Amusement park rides are normally fabricated off-site by specialty companies. They are transported to the site on tractor trailers and assembled at the amusement park. The main on-site work consists of preparing foundations for the ride and the assembly. The rides' foundations are usually fairly small to support the columns for the ride. The foundations would be excavated, reinforcing cages installed, and concrete poured. This operation typically involves 20 to 40 construction workers. The installation of the rides uses cranes to lift the pieces and either bolting or welding to connect the pieces. About 50 construction workers may be on-site.

ESTIMATED CONSTRUCTION WORKER AND TRUCK INTENSITIES

Table 20-2 presents the peak number of construction workers and delivery trucks expected for each quarter during the construction on the projected sites.

Table 20-2
Daily Numbers of Construction Workers and Delivery Trucks

Year	2009				2010				2011			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Workers	0	0	0	10	34	47	107	167	375	502	662	895
Trucks	0	0	0	4	13	19	46	58	157	187	264	319
Year	2012				2013				2014			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Workers	730	772	715	628	648	902	815	975	1,118	1,272	1,285	1,163
Trucks	252	226	245	209	220	288	238	321	365	401	453	404
Year	2015				2016				2017			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Workers	862	895	1,095	1,015	623	878	862	1,112	1,452	1,523	1,562	1,495
Trucks	289	266	339	281	172	265	311	411	572	680	669	555
Year	2018				2019				OVERALL			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	Peak		Average	
Workers	1,252	897	445	338	178	75	25	25	1,562		742	
Trucks	495	426	168	118	65	28	13	13	669		264	

Notes: The number of construction workers and delivery trucks represents the average of the highest number over a several week period and does not reflect the absolute peak day.
1st Quarter: January-March; 2nd Quarter: April-June; 3rd Quarter: July-September; 4th Quarter: October-December.
Estimates have assumed construction work would occur weekdays during regular allowable construction hours for most activities.

In this conceptual construction schedule, the number of workers and truck deliveries would peak during 2017 with up to 1,562 workers per day and 669 trucks per day. During this time period, six buildings could be under construction in Coney West and seven buildings in Coney East. These two subdistricts are the largest in area and would have the greatest numbers of large buildings. For the 10 years of construction, the average number of workers at the projected

development sites would be 742, and the average number of daily trucks would be 264. These numbers represent the highest number of workers and deliveries sustained over a several week period and may not reflect the single highest day.

C. PROBABLE IMPACTS OF THE PROPOSED ACTIONS

LAND USE AND NEIGHBORHOOD CHARACTER

Potential impacts on land use and neighborhood character during construction of the proposed actions could occur as a consequence of disruptive and noticeable increases in traffic, noise, and air quality emissions or if community activities are disrupted.

Land uses in the area immediately surrounding the rezoning area are primarily recreational, residential, and commercial. To the east are the Aquarium and Asser Levy Park. To the northeast, high-rise apartment buildings predominate, and 1-and 2-family houses are found to the north of the rezoning area. Land use in the west of the rezoning area is predominantly residential. The Riegelmann Boardwalk and Coney Island Beach extend along the full length of the rezoning area's southern boundary.

Construction activities would affect land use on the projected development sites and the proposed, mapped open amusement park and Highland View Park sites but would not alter surrounding land uses. Certain types of construction activities would be noisy and intrusive to the adjacent residences and open space—particularly the early stages of building construction on the various parcels. However, as discussed in more detail below (see "Noise"), the noisiest construction activities adjacent to any one sensitive receptor would take place for a limited period of time (less than 9 consecutive months), and no significant adverse noise impacts are expected. During construction, air pollutants would be emitted from off-site mobile sources (i.e., worker vehicles and trucks on public roadways) and on-site non-road construction equipment and trucks. As discussed below (see "Air Quality"), significant adverse air quality impacts are not expected.

Construction staging activities for the proposed actions would occur within the parcels or within portions of the sidewalks and curb lanes of the street system adjacent to the projected development sites. Access to surrounding land uses would be maintained throughout the construction period, and adherence to the provisions of the New York City Building Code and other applicable regulations would reduce the potential adverse effects of construction activities on land use patterns and neighborhood character. Moreover, although the project anticipates a 10-year construction schedule, the level of activity would vary and move throughout the rezoning area, and no one area would experience the effects of the project's construction activities for the full 10-year duration.

Within the neighborhood surrounding the rezoning area, there are likely to be temporary and localized construction impacts on noise as a result of construction activity, operation of heavy equipment on-site, and construction workers traveling to and from the site, and trucks delivering materials to and removing construction waste from the site. Generally, the intensity of the off-site impact decreases with the distance from the site.

In sum, combined construction effects at the project sites are not expected to result in potential significant adverse impacts to land use and neighborhood character.

SOCIOECONOMIC CONDITIONS

Construction would create major direct benefits resulting from expenditures on labor, materials, and services, as well as substantial indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the direct activity. The direct benefits would accrue to the construction companies, workers, and suppliers; the indirect benefits would accrue to local merchants, service workers, and firms that provide goods to the construction workers. Construction would also contribute to increased tax revenues for the City and State, including those from personal income taxes.

Construction of the RWCDS would not affect the access to and therefore the viability of any business. It is not expected that construction activities would cause the failure of any business thereby affecting neighborhood character.

Overall, there would be no significant adverse impacts on socioeconomic conditions due to construction.

HISTORIC RESOURCES

See Chapter 7, "Historic Resources," for more detailed information on the historic resources in the rezoning area and surrounding study area. Since the New York City Landmarks Preservation Commission (LPC) reviewed all the blocks and tax lots within the rezoning area for the purpose of identifying lots with the potential to contain archaeological resources and determined that the blocks and lots within the rezoning area do not possess any archaeological significance, construction would not have a significant adverse impact on archaeological resources.

There are eight architectural resources located in the proposed rezoning area. They are amusement rides and structures related to the historic amusement district. These resources and their locations are listed below:

- Parachute Jump, Riegelmann Boardwalk
- The Cyclone, Surf Avenue and West 10th Street
- The Wonder Wheel, West 12th Street between Surf Avenue and Riegelmann Boardwalk
- Childs Restaurant, 1208 Surf Avenue
- Nathan's Famous, 1308 Surf Avenue
- Astro Tower and Rocket, Astroland Amusement Park
- Shore Theater, 1301 Surf Avenue
- Childs Restaurant, Riegelmann Boardwalk at West 21st Street

In addition, there are two architectural resources located within 400 feet of the rezoning area:

- The row houses at 2841-2863 West 20th Street between Mermaid and Neptune Avenues
- Our Lady of Solace Roman Catholic Church and Shrine, Convent and School on Mermaid Avenue between West 17th and 19th Streets

In 2008, Astroland Amusement Park was sold to a new owner, and the park closed at the end of the summer. This sale and closure will result in the removal of the Astro Tower and the Astroland Amusement Park Rocket from the rezoning area in the future without the proposed actions. Therefore, construction would not have a significant adverse impact on these resources.

There is one architectural resource that could be redeveloped under the RWCDS. Nathan's Famous restaurant at 1308 Surf Avenue is located on a potential development site in the Coney

East subdistrict and is assumed to be replaced or enlarged under the proposed actions. In the absence of New York City Landmark designation for this resource located on a development site, and as the site is privately owned, there are no procedures in place that would ensure pre-construction design review or preventative measures to minimize effects of construction and potential demolition or alteration. Therefore, the potential development identified on the site containing Nathan's Famous would result in direct significant adverse impacts to this resource through demolition or potential alteration. It should be noted that Nathan's Famous is located on a potential development site, which is considered less likely to be redeveloped than a projected development site.

There are two additional known architectural resources located on development sites, but they are expected to remain under the RWCDS. The Childs Restaurant at 1208 Surf Avenue is located on a potential development site in the Coney East subdistrict. Coney Island USA recently purchased this building with assistance from the City of New York on condition that it be preserved for continued amusement and cultural uses, and it is currently being restored. Under the RWCDS, it is assumed that additional floor area generated on the site of Childs Restaurant would be transferred and that the remaining portion of the adjacent potential development site would be redeveloped with a new building containing hotel amusement, retail, and enhancing uses. Therefore, there would not be any significant adverse impacts to the Childs Restaurant at 1208 Surf Avenue from demolition or other physical alterations under the RWCDS for the proposed actions. The Childs Restaurant on the boardwalk is located on a projected development site in the Coney West subdistrict, and under the RWCDS it is assumed that the architectural resource would be enlarged and reused with a commercial use. However, there would be no significant adverse impacts to this New York City Landmark, because no demolition or exterior changes can be made to it without first obtaining LPC approval.

Development in the rezoning area could have adverse physical impacts on seven architectural resources that are located within the rezoning area or within 90 feet of the proposed construction activities. Ninety feet has been determined to be the distance close enough to a construction site to potentially experience adverse construction-related impacts from ground-borne vibrations, falling debris, subsidence, collapse, or damage from construction machinery.

Two mechanisms protect buildings in New York City from potential damage caused by adjacent construction. All buildings are provided some protection from accidental damage through DOB controls that govern the protection of any adjacent properties from construction activities, under Building Code Section 27-166 (C26-112.4). For all construction work, Building Code Section 27-166 (C26-112.4) safeguards buildings by requiring that all lots, buildings, and service facilities adjacent to foundation and earthwork areas be protected and supported in accordance with the requirements of Building Construction Subchapter 7 and Building Code Subchapters 11 and 19.

The second protective measure applies to New York City Landmarks, properties within New York City Historic Districts, and National Register-listed properties. For these structures, DOB *Technical Policy and Procedure Notice* (*TPPN) #10/88* applies. *TPPN #10/88* supplements the standard building protections afforded by Building Code C26-112.4 by requiring a monitoring program to reduce the likelihood of construction damage to adjacent New York City Landmarks and National Register-listed properties (within 90 feet) and to detect at an early stage the beginnings of damage so that construction procedures can be changed. With these required measures, significant adverse construction-related impacts would not occur to the Parachute Jump, the Cyclone roller coaster, the Wonder Wheel, or the Childs restaurant on the boardwalk.

For the three non-designated or listed resources within 90 feet of proposed construction activities, construction under the proposed actions could potentially result in construction-related impacts to the resources. The resources would be afforded limited protection under DOB regulations applicable to all buildings located adjacent to construction sites (C26-112.4); however, since the Childs restaurant at 1208 Surf Avenue, the Shore Theater, and Our Lady of Solace Roman Catholic Church are not New York City Landmarks or listed National Register properties, they are not afforded special protections under *TPPN #10/88*. Additional protective measures afforded under *TPPN #10/88* would only become applicable if the three resources are designated or listed in the future prior to the initiation of adjacent construction. If the three resources are not designated or listed, they would not be subject to *TPPN #10/88* and may, therefore, be adversely impacted by adjacent development resulting from the proposed actions.

HAZARDOUS MATERIALS

As discussed in Chapter 11, "Hazardous Materials," in areas to be excavated or disturbed under the proposed actions, there is the potential to encounter lead-based paint and/or asbestos-containing building materials as well as contaminated materials. In order to identify portions of the rezoning area with a significant likelihood of potentially hazardous conditions from past or present, on- or off-site uses, a variety of information sources were reviewed including: Sanborn™ Fire Insurance maps; environmental regulatory agency databases identifying State and/or federally listed sites; and City databases and records (including electronic DOB and New York City Fire Department records). In addition, reconnaissance of the rezoning area and surrounding area within a 400-foot radius was performed.

Although the proposed actions could result in more construction activities that could increase pathways for human exposure, the possibility of impacts would be reduced by the following measures. Prior to construction, further investigation would be performed on each projected and potential development site where known or potential hazardous or contaminated materials were identified, to determine the presence and nature of contaminants of concern and the proper remedial and/or health and safety measures that would be employed during redevelopment.

An E-designation would be placed on privately owned lots. The E-designation would require that, prior to redevelopment, the property owner conduct a Phase I Environmental Site Assessment (ESA) in accordance with the American Society of Testing Materials (ASTM) E1527-05, prepare and implement a soil and groundwater testing protocol, and conduct remediation where appropriate, to the satisfaction of DEP before issuance of construction-related building permits by the DOB (pursuant to Section 11-15 of the Zoning Resolution – Environmental Requirements). The E-designation also requires mandatory construction-related health and safety plans, which must also be approved by DEP. A Phase II report is required at the completion of the site investigation if potential contamination is identified. Remediation, if necessary, based on the Phase II will then be addressed during construction. A closure report is required at the completion of all remedial activities.

E-designations would not be placed on City-owned lots. In the case of lots owned by New York City Department of Housing Preservation and Development (HPD), Land Disposition Agreements created between HPD and the development sponsor would require a similar environmental review process to development undergoing CEQR. For other City-owned lots, either NYCEDC or the New York City Department of Parks and Recreation (DPR) would enter into a Memorandum of Understanding with DEP stipulating implementation of the environmental review process for site testing and any required remediation. Restrictive

declarations would be placed on any sites to be subsequently disposed of by the City to a private developer, in accordance with the Memorandum of Understanding for that site.

With these enforcement mechanisms, each projected and potential site would be researched, sampled and tested if needed, and mitigation measures to prevent exposures to hazardous and contaminated materials would be developed. With these measures, no significant adverse impacts from hazardous materials are expected.

NATURAL RESOURCES, WATER QUALITY, AND FLOODPLAINS

Construction activities in the rezoning area would have the potential to affect natural resources and water quality. Specifically, construction activities would result in the loss of potential habitat for plants and wildlife. The construction activities involve clearing of land, and, unless control measures are taken, erosion and sediment laden runoff could result. All of the rezoning area is located within the 100-year floodplain, within which construction could lead to additional flooding.

The construction would impact terrestrial resources from land clearing and excavation. As the project is constructed, the plant communities within the currently undeveloped lots would be removed, to be replaced by development. The majority of plant communities occurring within the rezoning area are not particularly diverse or unique. Most of the plant communities present within undeveloped portions of the project site are common to urban vacant land. The loss of such urban-adapted flora would not result in a significant adverse impact to plant communities in the region.

The reduction in terrestrial habitat as a result of the construction would displace some wildlife, the majority being urban-adapted or transient species, which currently occur within the project site at some point during the year. The loss of terrestrial habitat would have the potential to adversely affect some individual birds and other wildlife currently using the limited wildlife habitat. However, the wildlife species within this area are common to urban areas, and the loss of some individuals would not result in a significant adverse impact on wildlife communities of the region.

The proposed actions would be covered under the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-08-001. To obtain coverage under this permit, a Stormwater Pollution Prevention Plan (SWPPP) would be prepared and a Notice of Intent (NOI) would be submitted to NYSDEC. The SWPPP would comply with all of the requirements of GP-0-08-001 and NYSDEC's technical standard for the design of water quantity and water quality controls (post-construction stormwater control practices) presented in the 2008 New York State Stormwater Management Design Manual. Implementation of erosion and sediment control measures, and stormwater management measures identified in the SWPPP would minimize potential impacts to tidal wetlands in the Atlantic Ocean and Coney Island Creek during land-disturbing activities resulting from construction of the proposed actions.

The entire project site is within the 100-year floodplain. The floodplain within and adjacent to the rezoning area is affected by coastal flooding, which is influenced by astronomic tide and meteorological forces (e.g., northeasters and hurricanes), and, therefore, would not be affected by development of the projected development sites. Any development that would occur within the rezoning area would be consistent with the New York City Building Code (Title 27, Subchapter 4, Article 10) which requires that residential buildings have a finished floor elevation

at or above the 100-year floodplain. It is expected that the ground elevation of many sites would be raised to be closer to or at the 100-year flood elevation.

TRAFFIC AND PARKING

Construction activity would extend from the end of 2009 to 2019 and would generate construction worker and truck traffic. Because of the lengthy duration of these activities, an evaluation of construction sequencing and worker/truck projections was undertaken to assess potential traffic-related impacts. As described below, the projected construction activities would yield less total traffic than projected for the proposed actions except for the weekday AM construction peak hour where projected construction vehicle trips would be comparable to the proposed action vehicle trips.

CONSTRUCTION TRAFFIC PROJECTIONS

Average daily construction worker and truck activities by quarter were projected for the approximately ten years of construction. These projections were further refined to account for worker modal splits and vehicle occupancy, and arrival and departure distribution.

Daily Workforce and Truck Deliveries

For a reasonable worst-case analysis of potential transportation-related impacts during construction, the daily workforce and truck trip projections in the peak quarters were used as the basis for estimating peak hour construction trips. Based on a schedule of commencing construction at the end of 2009, the combined construction worker and truck traffic peak would occur in the third quarter of 2017. The daily average number of construction workers and truck deliveries during this construction peak quarter was estimated at 1,562 workers and 669 truck deliveries per day. These estimates of construction activities are further discussed below.

Construction Worker Modal Splits

According to the U.S. Census reverse journey-to-work (RJTW) data, commuting to work via auto for construction and excavation occupations in the study area is approximately 60 percent, with an average auto occupancy rate of 1.14. However, for a more conservative analysis, a 70 percent auto usage was used to project the numbers of vehicle trips generated by future construction workers.

Peak Hour Construction Worker Vehicle and Truck Trips

Site activities would mostly take place during the typical construction shift of 7 AM to 3:30 PM. However, as described above, some construction tasks may occasionally extend to 5 or 6 PM and take place on weekends.

While construction truck trips would be made throughout the day (with more trips made during the early morning), and most trucks would remain in the area for short durations, construction worker travel would typically take place during the hours before and after the work shift. For analysis purposes, each worker vehicle was assumed to arrive in the morning and depart in the afternoon or early evening, whereas each truck delivery was assumed to result in two truck trips during the same hour (one “in” and one “out”).

The estimated daily vehicle trips were distributed throughout the workday based on projected work shift allocations and conventional arrival/departure patterns of construction workers and trucks. For construction workers, the majority (80 percent) of the arrival and departure trips

would take place during the hour before and after each shift (6-7 AM for arrival and 3-4 PM for departure on a normal day shift). For construction trucks, deliveries would occur throughout the day when the construction site is active. Construction truck deliveries typically peak during the hour before the normal work day (25 percent of daily total), overlapping with construction worker arrival traffic. Based on these assumptions, peak hour construction traffic was estimated for the entire construction period. The peak construction hourly trip projections for the third quarter of 2017 are summarized in **Table 20-3**.

Table 20-3
Peak Construction Trip Projections 2017

	Construction Workers				Construction Truck Trips		Total Vehicle-Trips		
	Worker-Trips		Auto-Trips						
Hour	In	Out	In	Out	In	Out	In	Out	Total
6 AM - 7 AM	1,250	0	768	0	167	167	935	167	1102
7 AM - 8 AM	312	0	192	0	67	67	259	67	326
8 AM - 9 AM	0	0	0	0	67	67	67	67	134
9 AM - 10 AM	0	0	0	0	67	67	67	67	134
10 AM - 11 AM	0	0	0	0	67	67	67	67	134
11- AM -12 PM	0	0	0	0	67	67	67	67	134
12 PM - 1 PM	0	0	0	0	67	67	67	67	134
1 PM - 2 PM	0	0	0	0	67	67	67	67	134
2 PM - 3 PM	0	156	0	96	33	33	33	129	162
3 PM - 4 PM	0	1,250	0	768	0	0	0	768	768
4 PM - 5 PM	0	156	0	96	0	0	0	96	96
5 PM - 6 PM	0	0	0	0	0	0	0	0	0
6 PM-7 PM	0	0	0	0	0	0	0	0	0
Day Total	**1,562**	**1,562**	**960**	**960**	**669**	**669**	**1,629**	**1,629**	**3,258**

Notes: Hourly construction worker and truck trips were derived from projected estimates of 1,562 workers and 669 trucks making two daily trips each (arrival and departure) for the third quarter of 2017. Numbers of construction worker vehicles were calculated with a 70 percent auto split with vehicle occupancy of 1.14.

TRAFFIC

As discussed above and shown in **Table 20-4**, construction activities would result in maximum combined auto and truck traffic of 1,102 and 768 vehicle trips during the 6-7 AM and 3-4 PM peak hours for the third quarter of 2017. In comparison, the proposed actions would generate 1,016, 1,791, and 1,982 vehicle trips during typical weekday AM (8:00-9:00 AM), midday (1:00-2:00 PM), and PM (6:00-7:00 PM) peak hours, respectively, as shown in **Table 20-4**.

Table 20-4
Comparison of Vehicle Trips—Construction Phase vs. Full Build-Out Conditions

Construction Phase (Third Quarter 2017)				Full Build-Out Conditions (2019 Proposed Actions)			
Weekday Peak Period	**In**	**Out**	**Total**	**Weekday Peak Period**	**In**	**Out**	**Total**
6:00 – 7:00 AM Arrival Peak Hour	935	167	1,102	8:00 – 9:00 AM Peak Hour	339	677	1,016
3:00 – 4:00 PM Regular Departure Peak Hour	0	768	768	1:00 – 2:00 PM Midday Peak Hour	965	826	1,791
				6:00 – 7:00 PM Peak Hour	1,104	878	1,982

During the 6-7 AM construction peak hour, background traffic volumes would be approximately 45 percent lower than the 8-9 AM commuter peak hour. With approximately the same number of vehicle trips generated by the construction activities as compared to the completed development uses, projected operational impacts described in Chapter 16, "Traffic and Parking," represent the maximum envelope of potential traffic impacts associated with the projected construction traffic. Similarly, during the 3-4 PM construction peak hour, background traffic volumes would be comparable with the 6-7 PM volumes. However, construction-generated vehicle trips would be 35 to 45 percent of project-generated traffic during the midday and PM peak hours. Hence, some of the projected impacts during these operational peak hours may not occur or may be more readily mitigatable during the 3-4 PM construction peak hour.

DELIVERIES

Construction trucks would be required to use New York City Department of Transportation-(NYCDOT) designated truck routes, including Cropsey Avenue, McDonald Avenue, Coney Island Avenue, and Neptune Avenue. Trucks would then use local streets to access the construction sites. Potential truck routings should avoid streets with narrow widths or streets requiring difficult turning maneuvers to the extent possible.

CURB LANE CLOSURES AND STAGING

The majority of the roadways within the rezoning area already exist today and would be improved with the proposed actions, and some new streets will be added. During this time period, six buildings could be under construction in Coney West and seven buildings in Coney East. These two subdistricts are the largest in area and would have the greatest numbers of large buildings. With the two largest subdistricts in the area still under construction, there would be very few pedestrians walking near the construction areas. Curb lane closures within and adjacent to the construction area should not affect traffic operations, parking capacities and/or pedestrian safety. Staging areas would be required from the start of foundation work until cranes and hoists are completely removed at the completion of the core and shell stage. Because the majority of construction activities would be accommodated on-site, construction trucks would be staged primarily within the development parcels, or on newly completed streets adjacent to or south of active construction sites.

Maintenance and protection of traffic plans would be developed for curb lane and sidewalk closures. Approval of these plans and implementation of all temporary sidewalk and curb lane

closures during construction would be coordinated with NYCDOT's Office of Construction Mitigation and Coordination (OCMC).

PARKING

The construction activities would generate a maximum daily parking demand of up to 960 spaces for the third quarter of 2017. This parking demand would likely be accommodated within vacant lots available for construction staging and parking. It is expected that the large majority of construction workers would park on these vacant lots adjacent to the various active construction sites, because these lots would be secure and convenient to the work area.

TRANSIT AND PEDESTRIANS

As described below, the projected construction activities are not expected to result in significant adverse transit and pedestrian impacts.

TRANSIT

With approximately 70 percent of the construction workers predicted to commute via auto, the remaining 30 percent would travel to and from the rezoning area via transit. Based on the peak 2017 projections discussed above and summarized in **Table 20-4**, there would be approximately 375 construction-related transit trips during the 6-7 AM and 3-4 PM construction peak hours, respectively. The transit trip demand during the morning and afternoon construction shoulder peak hours would range from 47 to 94 trips. Distributed among the D, F, N, and Q subway lines, and the X28, X29, X38, B36, B64, B68, B74, and B82 bus routes, only nominal increases in transit demand would be experienced along each of those routes and at each of the transit access locations during hours within and outside of the typical commuter peak periods. Hence, no further evaluation of nearby transit services is required, and there would not be a potential for significant adverse transit impacts attributable to the projected construction worker transit trips. Any temporary relocation of bus stops along bus routes that operate adjacent to the projected development sites would be coordinated with NYCDOT and New York City Transit (NYCT) to ensure proper access is maintained.

PEDESTRIANS

For the same reasons discussed above, with respect to transit operations, a detailed pedestrian analysis to address the projected demand from the travel of construction workers to and from the rezoning area is also not warranted. Considering that these pedestrian trips would primarily occur outside of peak hours and be distributed among numerous sidewalks and crosswalks in the area, there would not be a potential for significant adverse pedestrian impacts attributable to the projected construction worker pedestrian trips. During construction, where temporary sidewalk closures are required, adequate protection or temporary sidewalks and appropriate signage would be provided in accordance with NYCDOT requirements.

AIR QUALITY

During construction of the RWCDS, air pollutants would be emitted from off-site mobile sources (i.e., worker vehicles and trucks on public roadways) and on-site non-road construction equipment and trucks. Most construction engines are diesel-powered, and produce relatively high levels of nitrogen oxides (NO_X) and particulate matter (PM). Although diesel engines emit much lower levels of carbon monoxide (CO) than gasoline engines, the stationary nature of construction

emissions could lead to elevated CO concentrations, and impacts on traffic could increase mobile source-related emissions of CO as well. Therefore, the pollutants of concern for the construction period are NO_2, CO, particles with an aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}), and particles with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$). Ultra-low-sulfur diesel (ULSD) is now easily available and can be used in almost any diesel engine, and is required for trucks under federal fuel regulations. Construction engines and trucks using ULSD would emit negligible quantities of sulfur oxides (SO_x, which includes sulfur dioxide, SO_2).

In addition, fugitive dust can be suspended in air by construction activities such as site cleanup and preparation, excavation, and transferring and loading soil or loose material. Fugitive dust can also be re-suspended by construction vehicles traveling on unpaved surfaces and from wind erosion of stockpiled materials. Fugitive dust is mostly larger than the $PM_{2.5}$ size range, and would fall in the PM_{10} range or larger. At this time, a concrete batching plant is not expected to be needed onsite, and thus, fugitive dust from this activity is not anticipated.

Non-road engines to be used on site would include equipment such as excavators, bulldozers, generators, and concrete pumps. In addition to emissions originating from trucks as they arrive and depart, concrete trucks would be required to run their engines continuously during concrete pours in order to keep the concrete mix in motion.

Several measures would be included in the City-controlled construction contract documents to generally reduce emissions, and specifically to substantially reduce diesel particulate matter (DPM) emissions from construction engines. Because these measures have become common, contractors have the equipment, and the measures have little cost implications, the measures are used on many private construction projects. With the exception of concrete trucks, truck-idling would be restricted to three minutes. The construction contracts would specify the requirement for the following emission reduction measures:

- Using electric engines where practicable and ensuring the distribution of power connections throughout the construction area as needed. Equipment that would use grid power instead of diesel engines would include, but may not be limited to, material hoists, welders, water pumps and compressors. This would also eliminate the need for continuous use of generators on-site, and reduce the need for small generators that would normally be needed for construction equipment. Forklifts would be either electric powered or use natural gas to the extent possible.
- Using ultra low sulfur diesel (ULSD) exclusively for all diesel powered engines; this would enable the use of tailpipe reduction technologies and would directly reduce DPM and SO_X emissions.
- Using Best Available Tailpipe Reduction Technologies: Nonroad diesel engines with a power rating of 50 horsepower (hp) or greater and controlled truck fleets (i.e., truck fleets under long-term contract, such as concrete mixing and pumping trucks) would utilize the best available tailpipe technology for reducing DPM emissions. Diesel particle filters (DPFs) have been identified as being the tailpipe technology currently proven to have the highest reduction capability. The construction contracts would specify that all diesel nonroad engines rated at 50 hp or greater would to the extent practicable utilize DPFs, either original

equipment manufacturer (OEM) or retrofit technology, including active or passive DPFs.[1] The use of DPFs would result in emission reductions of DPM of at least 90 percent (when compared with normal private construction practices), as verified by a study of actual reductions of $PM_{2.5}$ emissions from comparable engines used at a New York City construction site. The use of diesel oxidation catalyst (DOC) would be allowed in lieu of DPF only in cases where a DPF would not function properly with a specific engine or can not be installed on a specific engine for safety reasons, and where an alternative engine type with DPF cannot be used for a necessary construction task.

- Using non-road engines certified by EPA as Tier 2 or higher exclusively (engines with higher 'Tier' certification generally have lower emissions).

In addition, in order to reduce the resulting concentration increments at sensitive locations, large emissions sources and activities, such as concrete trucks and pumps, would be located away from residential buildings, playing fields, and parks, to the extent practicable with special attention given to any sources within 50 feet of such locations. This measure would further reduce potential concentration increments from on-site sources at such locations by increasing the distance between the emission sources and the sensitive locations, resulting in enhanced dispersion of pollutants.

In addition, strict dust control measures would be implemented to ensure that dust emissions from construction activity are limited to the extent practicable. Measures would include:

- Washing off trucks and excavation equipment prior to exiting the site;
- Washing the areas surrounding the site (sidewalks, streets, etc.) at the end of every work day;
- Wetting unpaved truck routes within the site as needed or, in cases where a route would remain in the same place for an extended duration, stabilizing, covering with gravel, or temporarily paving the route to avoid the resuspension of dust;
- Equipping all trucks hauling loose material with tight fitting tailgates and covering the load prior to leaving the site;
- Using closed chutes leading to covered bins for material drops during demolition;
- Enforcing an on-site vehicular speed limit of 5 mph;
- Using water sprays for all excavation, demolition, and transfer of spoils to ensure that materials are dampened as necessary to avoid the suspension of dust into the air; and
- Wetting or covering loose materials, or stabilizing them with a biodegradable suppressing agent.

All necessary measures would be implemented to ensure that the New York City Air Pollution Control Code regulating construction-related dust emissions is followed.

Total long-term emissions from on-site construction equipment and trucks for the proposed actions are expected to be comparable to the construction emissions estimated for some recent large development projects, for which significant construction air quality impacts were not

[1] There are two types of DPFs currently in use: passive and active. Most DPFs currently in use are the "passive" type, which means that the heat from the exhaust is used to regenerate (burn off) the PM to eliminate the buildup of PM in the filter. Some engines do not maintain temperatures high enough for passive regeneration. In such cases, "active" DPFs can be used (i.e., DPFs that are heated either by an electrical connection from the engine, by plugging in during periods of inactivity, or by removal of the filter for external regeneration).

predicted.[1] For example, the detailed, quantified air quality impact assessment for the Atlantic Yards Arena, a large construction project proposed in Brooklyn,[2] which would also include a robust emissions reduction program, concluded that there would be no significant adverse impacts on air quality during construction. Sensitive receptors immediately adjacent to the construction sites were analyzed.

Under New York State Environmental Quality Review Act (SEQRA) and New York City Environmental Quality Review (CEQR) regulations, the determination of the significance of impacts is based on an assessment of the predicted intensity, duration, geographic extent, and the number of people who would be affected by the predicted impacts. Guidelines for assessing potential impacts from NO_X, CO, and $PM_{2.5}$ are discussed in Chapter 18, "Air Quality." While it is possible that the construction activities may exceed certain thresholds used for assessing the potential for significant adverse air quality impacts, any exceedance would be limited in extent, duration, and severity. The project sites are large, and construction would be located away from sensitive receptors. The most emission intensive construction phases, considering the emission controls that would be implemented, would generally be the site cleanup and foundation phases, which would not last more than a year at any one projected site.

Based on the information presented above, construction activities associated with the proposed actions would not result in significant adverse air quality impacts from stationary and non-road sources. Based on the construction traffic volumes during the peak construction period and the expected use of diesel particulate filters (DPF) in concrete trucks, which would constitute a large portion of the construction trucks, significant adverse impacts on air quality from on-road construction sources would not be expected.

NOISE

Impacts on community noise levels during construction can result from noise from construction equipment operation, and from construction vehicles and delivery vehicles traveling to and from the site. Noise and vibration levels at a given location are dependent on the type and quantity of construction equipment being operated, the acoustical utilization factor of the equipment (i.e., the percentage of time a piece of equipment is operating), the distance from the construction site, and any shielding effects (from structures such as buildings, walls, or barriers). Typical noise levels of construction equipment are shown in **Table 20-5**. Noise levels caused by construction activities would vary widely, depending on the phase of construction and the location of the construction activities relative to noise sensitive receptor locations. Noise sensitive receptors in the vicinity of the rezoning area include the Aquarium, Asser Levy Park, Coney Island Beach, and nearby residences. In addition, as buildings are constructed and occupied on the project sites, these buildings would be noise-sensitive receptors.

[1] *FEIS for the Proposed Manhattanville In West Harlem Rezoning And Academic Mixed-Use Development*, CPC–DCP, November 16, 2007; *Atlantic Yards Arena and Redevelopment Project FEIS*, ESDC, November 15, 2006.

[2] *Atlantic Yards Arena and Redevelopment Project FEIS*, ESDC, November 15, 2006.

Table 20-5
Typical Noise Emission Levels for Construction Equipment

Equipment Item	Noise Level at 50 ft. (dBA)
Air compressor	81
Backhoe	80
Ballast Equalizer	82
Ballast Tamper	83
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Impact Wrench	85
Jack Hammer, Drills	88
Loader	85
Paver	89
Pile Driver (Impact)	101
Pile Driver (Sonic)	96
Pneumatic Tool	85
Pump	76
Rail Saw	90
Rock Drill	98
Roller	74
Saw	76
Scarifier	83
Scraper	89
Shovel	82
Spike Driver	77
Tie Cutter	84
Tie Handler	80
Tie Inserter	85
Truck	88

Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration (FTA), May 2006.

Construction noise is regulated by the requirements of the New York City Noise Control Code (also known as Chapter 24 of the Administrative Code of the City of New York, or Local Law 113), the DEP Notice of Adoption of Rules for Citywide Construction Noise Mitigation (also known as Chapter 28), and EPA's noise emission standards. These local and federal requirements mandate that specific construction equipment and motor vehicles meet specified noise emission standards; that construction activities be limited to weekdays between the hours of 7 AM and 6 PM; and that construction materials be handled and transported in such a manner as not to create unnecessary noise. If weekend or after hour work is necessary, permits would be required to be obtained, as specified in the New York City Noise Control Code. Permit authorization for weekend or after hour construction work may be granted for the following circumstances—emergency work, cases of public safety, City construction projects, construction activities with minimal impact, and for a claim of undue hardship resulting from unique site characteristics, unforeseen conditions, scheduling conflicts and/or financial considerations.

The *CEQR Technical Manual* states that significant adverse noise impacts due to construction would occur "only at sensitive receptors that would be subjected to high construction noise levels for an extensive period of time." In general, this has been interpreted to mean that such impacts would occur only at noise sensitive receptors where high noise levels would occur for two or more consecutive years. In addition, the *CEQR Technical Manual* states that impact criteria for vehicular sources, using

existing noise levels as the baseline, should be used for assessing construction impacts. See Chapter 19, "Noise," for an explanation of noise measurement and sound levels. The criteria are as follows:

> If the existing noise levels are less than 60 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period, the threshold for a significant impact would be an increase of at least 5 dBA $L_{eq(1)}$. For the 5 dBA threshold to be valid, the resulting proposed actions condition noise level with the proposed actions would have to be equal to or less than 65 dBA. If the existing noise level is equal to or greater than 62 dBA $L_{eq(1)}$, or if the analysis period is a nighttime period (defined in the CEQR criteria as being between 10 PM and 7 AM), the incremental significant impact threshold would be 3 dBA $L_{eq(1)}$. (If the existing noise level is 61 dBA $L_{eq(1)}$, the maximum incremental increase would be 4 dBA, since an increase higher than this would result in a noise level higher than the 65 dBA $L_{eq(1)}$ threshold.)

A wide variety of measures can be used to minimize construction noise and reduce potential noise impacts. As part of the New York City Noise Control Code, a noise mitigation plan is to be developed and implemented that would include required source controls, path controls, and receptor controls. During each phase of construction on the projected development sites, measures would be implemented to reduce construction noise and vibration levels to the lowest practicable limits and to within the limits required by applicable codes and regulations, such as the New York City Noise Control Code. During periods of extensive excavation activity, measures would be taken to ensure that no structural damage to adjacent structures would occur.

In terms of source controls (i.e., reducing noise emission levels at the source or during the most noise sensitive time periods), the following measures for construction on the projected development sites would be implemented:

- Requiring contractors to utilize equipment that meets the noise emission level standards for construction equipment (specified in Subchapter 5 of the New York City Noise Control Code and in §28-109 of the DEP Notice of Adoption of Rules for Citywide Construction Noise Mitigation) from the start of construction activities and, when feasible and practicable, use a wide range of equipment, including construction trucks, that produce lower noise levels than typical construction equipment.
- Requiring, where feasible and practicable, that contractors use construction procedures and equipment (such as generators, concrete trucks, delivery trucks, and trailers) quieter than that required by the New York City Noise Control Code and in §28-109 of the DEP Notice of Adoption of Rules for Citywide Construction Noise Mitigation.
- Requiring that as early in the construction period as feasible and practicable, diesel-powered equipment be replaced with electrical-powered equipment, such as electric scissor lifts and electric articulating forklifts (i.e., early electrification).
- Requiring that all contractors and subcontractors properly maintain their equipment and have the appropriate manufacturer's noise reduction devices, including, but not limited to, a quality muffler that is free of rust, holes, and exhaust leaks installed.

In terms of path controls (e.g., placement of equipment, implementation of barriers between equipment and noise sensitive receptors), the following measures for construction would be implemented to the extent feasible and practicable:

- As required by the New York City Noise Control Code, noise barriers (a minimum height of 8 feet) would be provided around the perimeter of each construction site. Additional noise barriers, beyond what is required in both Local Law 113 and Chapter 28, could be utilized to

provide shielding if noise complaints are received. Truck deliveries would take place behind these noise barriers where feasible and practicable.

- Noisy equipment, such as generators, cranes, trailers, concrete pumps, concrete trucks, and dump trucks, could be located away from and shielded from noise sensitive receptor locations. For example, delivery and dump trucks, as well as many construction equipment operations, would operate behind noise barriers.

While increases exceeding the CEQR impact criteria for less than two consecutive years may be noisy and intrusive, they are not considered to be significant adverse noise impacts. The noisiest activities would take place for a limited period of time. The construction period for the nosiest activities (excavation, foundations, and superstructure) on the largest buildings is estimated to be less than 18 consecutive months. When pile driving activities are occurring, interior noise levels at noise sensitive locations, in close proximity and with a direct line-of-sight to the pile driving activities, may exceed 45 dBA $L_{10(1)}$, but this would be expected to occur for a relatively short time. In addition, little night work is expected (if the required permits for night work are authorized), and any exceedances of the CEQR criteria at noise sensitive locations would occur during the day. Therefore, no long-term, significant adverse noise impacts on the adjacent noise sensitive receptors are expected from construction activities.

Construction activities may be noisy and intrusive to users of the newly constructed amusement park and Highland View Park. The level of construction activity would vary and move throughout the rezoning area, and no immediate area would experience the effects of the project's construction for the full construction duration. While it is possible that construction activities may result in noise impacts on the open spaces to be constructed as part of the proposed actions, they would not be considered significant adverse impacts.

As buildings are constructed and occupied, they would become noise sensitive receptors. While the construction period would be 10 years in total, the level of noisy and intrusive activity would vary and move throughout the rezoning area, and no one area would experience the effects of the project's construction activities for the full 10-year duration. Construction adjacent to each of the new buildings would last between 12 to 24 consecutive months, depending on the location, and would typically consist of a short period of superstructure construction, some exterior work, and interior work, but the noisiest adjacent activities for each of the new buildings would take place for a limited period of time (less than 9 consecutive months). Therefore, no long-term, significant adverse noise impacts on the buildings to be constructed as part of the proposed actions are expected from construction activities.

RODENT CONTROL

Construction contracts would include provisions for a rodent (mouse and rat) control program. Before the start of construction, the contractor would survey and bait the appropriate areas and provide for proper site sanitation. During the construction phase, as necessary, the contractor would carry out a maintenance program. Coordination would be maintained with appropriate public agencies. Only EPA- and NYSDEC-registered rodenticides would be permitted, and the contractor would be required to perform rodent control programs in a manner that avoids hazards to persons, domestic animals, and non-target wildlife. Therefore, construction of the proposed Master Plan would not result in any significant adverse impacts to rodent control. ✷